



Spectral Gamma-Ray Borehole Log Data Report

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Borehole

21-27-07

Log Event A

Borehole Information

Farm : <u>BX</u>	Tank : <u>BX-102</u>	Site Number : <u>299-E33-134</u>
N-Coord : <u>45,450</u>	W-Coord : <u>53,160</u>	TOC Elevation : <u>655.36</u>
Water Level, ft :	Date Drilled : <u>5/31/1970</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>100</u>	

Borehole Notes:

According to the driller's log, this borehole was drilled in May 1970 to a depth of 150 ft using 6-in. casing. A starter casing of unknown dimensions was installed to a depth of about 20 ft; it is unknown whether the starter casing was removed. The drilling report does not indicate the borehole casing was perforated or grouted. The casing thickness is presumed to be 0.280 in., on the basis of the published thickness for schedule-40, 6-in. steel tubing. The top of the casing, which is the zero reference for the SGLS, is approximately 0.5 ft below the ground surface.

Equipment Information

Logging System : <u>1B</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>02/1997</u>	Calibration Reference : <u>GJO-HAN-13</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>06/26/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>16.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>06/27/1997</u>	Logging Engineer: <u>Gary Lekvold</u>
Start Depth, ft.: <u>138.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>75.5</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>3</u>	Log Run Date : <u>06/30/1997</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>76.5</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>27.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Borehole

21-27-07

Log Event A

Analysis Information

Analyst : S.D. Barry

Data Processing Reference : MAC-VZCP 1.7.9

Analysis Date : 07/08/1997

Analysis Notes :

This borehole was logged by the SGLS in four log runs. The post-survey field verification spectrum for log run three was not acquired because the BX Tank Farm was evacuated because of an electrical storm. The pre- and post-survey field verification spectra that were acquired met the acceptance criteria established for the peak shape and detector efficiency, confirming that the SGLS was operating within specifications. The energy calibration and peak-shape calibration from these spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during the logging operation.

Casing correction factors for a 0.280-in.-thick steel casing were applied during analysis.

The man-made radionuclides Cs-137, Sb-125, and processed uranium were detected around this borehole. The presence of Cs-137 was measured almost continuously from the ground surface to a depth of 59.5 ft, intermittently from 60 to 115 ft, and continuously from 115 ft to the bottom of the logging interval (138.5 ft). Sb-125 contamination was measured from 74.5 to 76.5 ft. Processed uranium was measured almost continuously from about 75 to 136.5 ft.

The K-40 concentration values increase at about 38 ft.

Additional information and interpretations of log data are included in the main body of the Tank Summary Data Report for tank BX-102.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The natural radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma rays used to calculate the concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the MDL. The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes the man-made, natural radionuclides and the total gamma derived from the spectral data.